Back to the Old Grind-*er*

Move Over White Bread. Finer Ground Whole Wheat Can Compete.

Americans consume five loaves of white bread for every loaf of whole wheat. And that's not desirable, say ARS nutritionists Kay Behall and Judy Hallfrisch at the Beltsville (Maryland) Human Nutrition Research Center.

White bread is low in fiber. Switching to whole wheat bread is an easy way for most people to increase fiber intake because two-thirds of the U.S. population consumes bread or rolls on any given day.

Populations that eat high-fiber diets reportedly have less heart disease, hypertension, colon cancer, diabetes, and obesity. According to the latest USDA food consumption survey, American women average a little more than half the recommended 25 grams of fiber daily, while American men average not quite three-fourths.

So Behall and Hallfrisch evaluated some health effects of an experimental bread made with an ultra-fine-ground whole wheat flour. The flour was developed by ConAgra to make whole-grain products palatable to more people. "Bread baked with this flour has a taste and texture very similar to white bread," says Hallfrisch. "And it has six times more fiber."

"We wanted to see if the smaller particle size of the flour would change glucose tolerance," says Behall, explaining that this test indicates a person's potential for diabetes. They also wanted to know if particle size alters how much carbohydrate is fermented in the colon instead of being digested in the small intestine. Fermented carbohydrates may reduce the risk of colon cancer, some research suggests, but they can also produce gas.

Twenty-six men and women participated in the study, consuming a glucose drink, white bread, regular whole wheat bread, and the experimental bread at four different times.

Behall says the experimental bread improved blood glucose and insulin levels about the same as regular whole wheat bread. Levels stayed lower compared to when the volunteers ate white bread or the sugary drink. The researchers concluded that particle size of the whole-grain flours does not seem to affect glucose tolerance.

And neither particle size nor fiber content affected the amount of carbohydrate fermented, says Hallfrisch. All three breads generated about the same amount of breath hydrogen—a measure of fermentation. And none produced more gastrointestinal distress than the others.

The ultra-fine-ground whole wheat flour has been used in some commercial breads, waffles, and other products made by ConAgra and PET, Inc., now part of Pillsbury, for about 4 years, according to Glen Weaver. He is director of technical services in ConAgra's flour milling division at Omaha, Nebraska. But the market is limited because the flour is made from white wheat rather than the more plentiful red wheat. Weaver is working to gear up U.S. production of white wheat so ConAgra can market the flour more widely.

A recent policy change by the Food and Drug Administration gives ConAgra more incentive. Last year, the agency began allowing health claims on the labels of products containing at least 51 percent whole-grain flours.—By **Judy McBride,** ARS.

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Kay M. Behall and Judith G. Hallfrisch are with the USDA-ARS Diet and Human Performance Laboratory, Beltsville Human Nutrition Research Center, Bldg. 308, 10300 Baltimore Ave., Beltsville, MD 20705-2350; phone (301) 504-9014, fax (301) 504-9098, e-mail behall@bhnrc.arsusda.gov hallfrisch@bhnrc.arsusda.gov. ◆

SCOTT BAUER (K8870-1)

Nutritionist Kay Behall works with study volunteer Dan Scholfield, who is consuming ultra-fine-ground bread in an experiment to evaluate its effect on blood glucose and insulin levels.